Project Atmosphere: Sensing, Analyzing, and Forecasting

Canadian Participant 2023 - Warren Hartery

As I write this report, it has only been a couple of weeks since the start of my in-person residency for Project Atmosphere in Kansas City and I am still in awe about this amazing learning experience. I reside in Newfoundland, on Canada's east coast, so my journey was long but worth it. Unfortunately, I had travel delays with my airline so I missed the welcome dinner on Sunday and the first morning of the residency. I am grateful for one of the AMS (American Meteorological Society) staff, Ms. Abigail Stimach, who picked me up from the airport and brought me straight to the National Weather Service Training Centre to prevent me from missing any further content.

In fact, the entire AMS staff was incredible, including Dr. Chad Kauffman who organizes and spearheads Project Atmosphere every year. His wealth of knowledge and enthusiasm is inspiring; every morning he would lead a group discussion on a teachable weather topic and allow the group to fill in the blanks to progress the discussion.

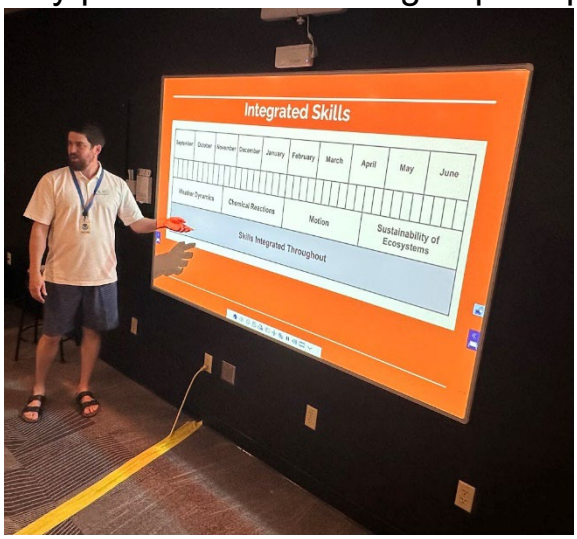
When I walked into the classroom on Monday afternoon TJ Gunkel from NOAA was giving a presentation on various weather resources to use in the classroom. While many of the resources have a heavy emphasis on the United States they can still be used as a resource. To access any of the resources below, simply type the resource name into a search engine.

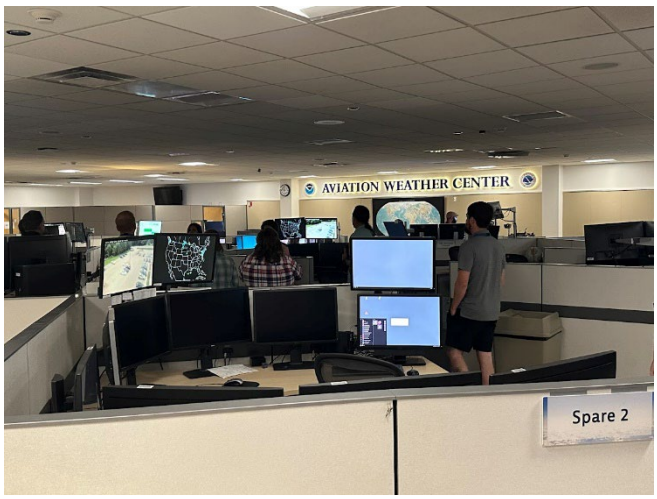
- Tropical Tidbits
- Weather Bell
- Fluid Earth
- Weather.cod.edu
- Windy
- Plymouth State Weather Centre
- Storm Prediction Centre

We concluded the day with some teacher-sharing sessions and we received our group assignments. These groups would meet informally over the next few days to prepare their own small presentation that would be

given at the end of the week; my group gave a presentation on how clouds and the atmosphere affect climate change.

Tuesday proved to be a great day as our first speaker was Andy Bailey, who is a warning coordination meteorologist for the National Weather Service. His presentation was based on Doppler Radar, so I was immediately drawn in. I consider myself a radar nerd, but I learned so much during that one-hour presentation. For example, I knew that there is a spinning dish sending out microwave energy inside that white dome, but I did not know that the dish changes its angle to obtain a highly detailed image of the atmosphere. Another interesting take-away included some radar limitations, such as the radar beam widens by about 1000 feet every 10 miles from the radar; therefore, the beam is 2 miles wide after travelling a distance of 100 miles from the radar, so image quality decreases. On Tuesday I also gave my presentation to the group. I spoke for about forty minutes about the Canadian education system and what it is like teaching in Newfoundland. It was very well received. We also heard from Jennifer Stroozes and received a tour of the NWS Aviation Weather Centre.





The following day saw speakers Bill Bunting, Doug Kluck, TJ Gunkel, and Sally Pavlow. Bill spoke about the NWS Storm Prediction Centre and their work with supercells and tornado warnings; I still remember him saying that even though technology plays a big role in forecasting and imagery they still do some drawings by hand when you need that extra detail that the models may miss. Other speakers spoke on climate change, weather balloons, and things the NWC has to offer. However, Jessica Taylor and Marile Robles had the biggest take-away experience in my opinion. They spoke about the GLOBE Program (Global Learning and Observations to Benefit the Environment). I highly recommend that all educators look into this NASA program and employ it in their classrooms. You download an app and go outside to give NASA data and pictures of the clouds in your area. NASA can see what clouds look like from space, but not necessarily from the ground looking upwards around the world.

Thursday included speakers Amy McGovern speaking about artificial intelligence used in weather, Barb Boustead speaking about climate change, and Shawn Dahl talking about space weather such as solar flares and radiation storms affecting Earth. In fact, this was the first year that space weather was included in Project Atmosphere. Towards the end of the day we also received a tour of a training room where technicians are trained to diagnose and fix mock weather equipment, including a Doppler tower and hardware bracket.

It was truly hard to believe that Friday crept up on us as quickly as it did that week. On our last day we had a number of speakers which included Alfonso Tapia from NOAA Education. He promoted the resource, “Science on a Sphere (SOS)”, which looks expensive but very impressive. Even if one’s school cannot afford a SOS, you can download the app for tablets and mobile devices. One of the last, but very influential, set of speakers were Sarah Atkins, Robin Fox, and Amanda Roberts. Their

presentation was titled, “Bringing the NWS into Your Classroom.” All you have to do is visit the website https://www.weather.gov/education/school-outreach and fill out the Google Form requesting a meteorologist or hydrologist to speak to your classroom virtually. I asked if they accept submissions from Canada and she said yes!

Over the course of the week we were able to sightsee what Kansas City had to offer. The city is known for its barbeque and it did not disappoint! Some of us also went to a Kansas City Royals game at the end of the week.

Overall, this was one trip I won’t soon forget! Our group chemistry clicked immediately and it was such a rewarding experience. I also have added knowledge and confidence to teach more in-depth meteorology topics to my students. I highly recommend any educator who is interested to apply for the Project Atmosphere workshop in the future. I want to thank the CMOS and the AMS for making this trip possible.

Warren Hartery